

BMDO's MISSION



■ PAC-3 (pictured above) provides the lower tier of the BMDO architecture. Its capabilities include defending troops and fixed assets from short- and medium-range ballistic missiles, cruise missiles, and hostile aircraft. *Photo courtesy of Raytheon Systems Company.*

BMDO is using a layered approach to protect U.S. forces and allies against ballistic missile attacks. This approach focuses on three priority areas: (1) theater missile defense (TMD), to address the short-range, widely dispersed threat from short-range ballistic missiles; (2) national missile defense (NMD), to address the long-range threat from intercontinental ballistic missiles; and (3) advanced technology, to continue advancing BMDO's capabilities to counter more complex future threats from ballistic missiles. Each priority area is discussed below.

THEATER MISSILE DEFENSE

BMDO's TMD program concentrates on low-altitude defenses where short-range (theater) ballistic missiles that travel less than 2,100 miles are a major threat. TMD is designed to protect U.S. forces, allies, and other countries, including geographic areas of vital interest to the United States, from theater missile attacks. It has the highest priority of the three programs because the current theater missile threat poses the highest risk to U.S. forces.

TMD focuses on land- and sea-based defenses for a lower and an upper tier, basically defined by the altitude at which an intercept takes place, the speed of the interceptor, and the speed of the enemy missile. Lower-tier TMD programs include the Patriot Advanced Capabilities-3 (PAC-3), the Navy Area Defense, and the Medium Extended Air Defense System. Upper-tier TMD programs include the Theater High Altitude Area Defense system (THAAD), Navy Theater-Wide Defense (NTW), and Airborne Boost-Phase Intercept. BMDO's core TMD programs—PAC-3, Navy Area Defense, THAAD, and NTW—represented the bulk of BMDO's research and development, test and evaluation, and procurement budget in fiscal year 1997.

NATIONAL MISSILE DEFENSE

BMDO's NMD program focuses on high-altitude defenses, prompted by concerns that so-called rogue states might some day develop missiles with ranges long enough to reach U.S. soil. The NMD concept is to develop and demonstrate an intercontinental ballistic missile defense system by 1999, continue development thereafter, and if necessary deploy an initial capability as early as

2003. This degree of flexibility is critical if BMDO is to be prepared for any world situation.

BMDO is pursuing a fixed, land-based architecture for its NMD program. The planned system includes six fundamental building blocks: the ground-based interceptor; ground-based radar; upgraded early warning radar; x-band radars; space-based infrared systems; and battle management/command, control, and communications systems.

ADVANCED TECHNOLOGY

BMDO's Advanced Technology program supports research on new technologies and options for improving existing systems. These new ideas include advanced interceptor technologies (improved sensor windows, projectile structures, guidance and control systems, and seekers); directed energy technologies (chemical lasers); and advanced sensor technologies (Midcourse Space Experiment, focal plane arrays, laser radar, and image-processing algorithms). Such technologies are vital for BMDO to stay ahead of increasingly sophisticated ballistic missile threats.

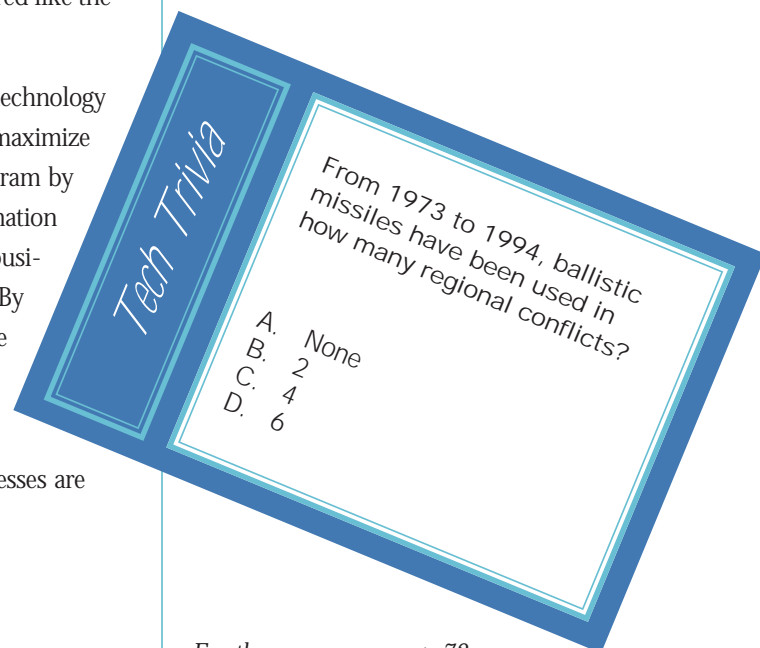
This program includes the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs. The SBIR program is designed to open the door to Federal research and development for small businesses and to speed the conversion of research findings to commercial products. Projects are funded in two competitive phases: In Phase I, the researcher demonstrates feasibility and develops a design concept; in Phase II, a prototype is built. The STTR program encourages cooperative joint research between businesses and nonprofit research institutions. It is structured like the SBIR program and operated by the same BMDO personnel.

Following the intent of Federal legislation, BMDO established a technology transfer effort—the Technology Applications (TA) program—to maximize research investments coming out of the Advanced Technology program by facilitating technology exchange. The TA program provides information about BMDO-developed technologies to U.S. corporations, small businesses, universities, entrepreneurs, and other government agencies. By doing this, it seeks to assist in the transfer of information between the developers of the technologies and those interested in using them.

BMDO has had many technology transfer successes in the 11 years since the TA program was founded. Some of the most recent successes are featured in this report.



■ Launched in 1996, the Midcourse Space Experiment (pictured above) is the first technology demonstration in space to characterize ballistic missile signatures during the important "midcourse" phase of flight between booster burnout and missile reentry.



For the answer, see page 72.